

REMARKS

This application has been reviewed in light of the Office Action dated February 4, 2003. Claims 1-3, 5-11, 13-15, 17-19, 21, 23-26, 28-31, 34-37, 39-42, and 45-50 are pending in this application. Claims 4, 12, 16, 20, 22, 27, 32, 33, 38, 43, 44, and 51 have been cancelled, without prejudice or disclaimer of subject matter. Claims 2, 3, 5, 13-15, 17-19, 28, 29, 31, 35, 39, 40, 42, 48, and 49 have been amended as to matters of form. These changes do not narrow the scope of any of these claims. Claims 1, 13, 23, 28, 34, 39, 45, and 48 are in independent form. Favorable reconsideration is requested.

The Office Action rejected Claims 1-33 and 45-51 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,270,187 (Murcia et al.) and rejected Claims 34-44 under U.S.C. § 103(a) as obvious from Murcia et al. in view of U.S. Patent No. 5,581,284 (Hermanson). Applicants respectfully traverse these rejections. Cancellation of Claims 4, 12, 16, 20, 22, 27, 32, 33, 38, 43, 44, and 51 renders their rejections moot.

Applicants submit that independent Claims 1, 13, 23, 28, 34, 39, 45, and 48, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art at least for the following reasons.

The aspect of the present invention set forth in Claim 1 is a recording apparatus for forming a color image on a recording material. The recording apparatus includes a recording head having a plurality of recording elements, a recording head driving means for driving the recording elements of the recording head in accordance with image data to form an image on the recording material, and a plurality of supplementing means for effecting supplementations, in different manners, for supplementing defects in a recorded image resulting from a non-operating recording element of the recording

elements. A control means of the apparatus selectively operates the plurality of supplementing means depending on the record image to effect the supplementation.

One important feature of Claim 1 is the control means that selectively operates the plurality of supplementing means depending on the images to be printed.

Murcia et al., as understood by Applicants, relates to a method and apparatus for hiding errors in single-pass incremental printing. The Office Action at page 2 states that Murcia et al. “discloses every element of the instant claimed invention including different operation approaches by supplementing ink for one of the failed nozzles.”

Applicants submit, however, that Murcia et al. discusses using other types of methods to compensate for nozzle failure and not that used in the apparatus of Claim 1. For example, the specification at column 8, lines 13-20, discusses one nozzle 127 (as seen in Figure 1, left column) that is subject to failure and the nozzle 127' (as seen in Figure 1, middle column) that has failed, and thereafter discusses several ways to conceal the consequences of the nozzle's failure, without giving up the benefits of single-pass operation. For example, the “Pen Crop” method compensates for the failed nozzle by declaring a segment inoperative and taking that segment out of service (see column 8, line 21, to column 9, line 10). The “Composite-Black Substitution” method compensates for the failed nozzle by substituting the data printed in composite black (see column 9, lines 11-56). The “Plural-Common-Base-Color-Printhead Substitution” method compensates for the failed nozzle by substituting the data printed by using other color printheads that print the same base color (see column 9, line 57, to column 10, line 8). The “Nearby Replacement” method compensates for the failed nozzle by having a nearby nozzle replace the printed data (see column 10, lines 9-32). Applicants submit, however, that none of the methods discussed above, or any other methods discussed in Murcia et al., would teach or suggest a control

means that *selectively* operates the plurality of supplementing means depending on the images to be printed, as recited in Claim 1.

Accordingly, at least for the reason described above, Applicants submit that Claim 1 is patentable over Murcia et al.

Independent Claim 13 includes a similar feature of effecting control of the forming of a color image in accordance with a selected manner as recited in Claim 1; Claims 23 and 28 are apparatus and method claims, respectively, that recite effecting supplementation recording with a different color of a non-operating recording element and with similar lightnesses, for a recording position which is to be recorded by the non-operating recording element, which was not taught or suggested by Murcia et al.; and Claims 45 and 48 are apparatus and method claims, respectively, that recite correcting image data corresponding to a recording element which is adjacent to a non-operating recording element of the plurality of recording elements, which was not taught or suggested by Murcia et al. Accordingly, Claims 13, 23, 28, 45, and 48 are believed to be patentable over Murcia et al. at least for the reasons described above.

Claims 34 and 39 are apparatus and method claims, respectively, that recite effecting supplementation recording with a recording element for black color recording, for a recording position corresponding to a non-operating recording element among the recording elements for non-black color recording, which was not taught or suggested by Murcia et al. The Office Action at page 3 states that Hermanson teaches the feature of “detecting the problem nozzle and compensating the missing dot corresponding to the problem nozzle with ink of [a] different color.” Applicants submit, however, that the black print portion not printed by the failed nozzle is compensated by a black color provided by mixing several non-black colors together and nothing in Hermanson would teach or

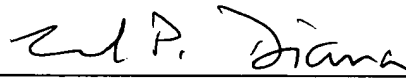
suggest a feature of effecting supplementation recording with a recording element for black color recording, for a recording position corresponding to a non-operating recording element among the recording elements for non-black color recording, as recited in Claims 34 and 39. Accordingly, Applicants submit that at least for this reason, Claims 34 and 39 are patentable over Murcia et al. and Hermanson, taken separately or in any proper combination (if any).

The other rejected claims in this application depend from one or another of the independent claims discussed above, and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

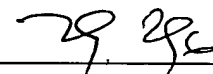
In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



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